

Commonwealth of Massachusetts Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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March 09, 2012

Gregory Lynch Granger-Lynch Corp. 18 McCracken Road Millbury, MA 01527 **RE**: Millbury

Transmittal No.: X238719 Application No.: CE-11-018

Class: SM-50 FMF No.: 50985 SSEIS No. 118-0057 PLAN APPROVAL

Dear Mr. Lynch:

The Central Regional Office of the Massachusetts Department of Environmental Protection, Bureau of Waste Prevention, ("MassDEP"), has reviewed your Non-Major Comprehensive Plan Application (the "Application") listed above. This Application concerns the proposed installation and operation of a Blue Smoke Control System on the two (2) existing asphalt plants at the Granger-Lynch Corp. hot mix asphalt manufacturing Facility located at 18 McCracken Road in Millbury, Massachusetts (the "Facility"). This Application also concerns the consolidation of all issued air quality Plan Approvals under this transmittal number. This Plan Approval will supercede all active previously issued air quality Plan Approvals. The submitted Application bears the seal and signature of John W. Lavin, Massachusetts P.E. No. 40234.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control Regulations," adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-N, and Chapter 21C, Section 4 and 6.

This Plan Approval is limited to the applicable air pollution control regulations and does not constitute approval as may be required by other MassDEP Regulations or Statutes in order for the above-mentioned facility to be installed and operated. This Plan Approval provides information on the project description, emission limitations, restrictions, specific conditions, record keeping, reporting and testing requirements.

MassDEP has determined that the Application, plans, specifications, and Standard Operating and Maintenance Procedures for the proposed equipment are in conformance with current air pollution control engineering practice, and hereby grants a **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval carefully, as it stipulates the particular conditions with which the facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with the Regulations. Failure to comply with this Plan Approval will constitute a violation of the Regulations and can result in the revocation of this Plan Approval.

AIR QUALITY PLAN APPROVAL TR #X238719

GRANGER-LYNCH CORP. MILLBURY, MASSACHUSETTS

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I. HISTORY

Granger -Lynch Corp. (the "Facility") owns and operates the hot mix asphalt drum and batch plants located at the McCracken Road facility in Millbury, MA. Existing equipment was previously approved under various air quality Plan Approvals.

Date October 15, 1982	Approval # CM-82-IF-038	<u>Approved Project</u> Barber Green Standard Havens baghouse (plant #2)
July 20, 1992	C-P-92-015	Astec Drum Plant (plant #1)
March 10, 1995	TR#92870	Final Restricted Emission Status (plants #1 & #2)
January 10, 2000	TR#206086	Astec Drum Plant modifications and Facility wide emissions
July 30, 2001	TR#206086	Specification used / low sulfur distillate fuel oil amendment
April 28, 2008	TR#51008664	Barber Greene burner replacement (Plant #2)

On March 14, 2011, Granger-Lynch Corp., entered into an Administrative Consent Order with Penalty, ACOP-CE-11-2009-27 (the "Order") with the MassDEP for violation of the Massachusetts Air Quality and Hazardous Waste regulations. The air quality violations cited in the Order included failure to operate in compliance with the Facility's air quality plan approval(s) including the occurrence of visible emissions from the ASTEC drum plant (EU #1), Barber Greene batch plant (EU #2), dust emissions emanating from the facility yard, and asphalt odors detected off site.

Actions to be taken included the requirement to submit a Non-Major Comprehensive Air Quality Plan Approval Application (BWP 02) to the MassDEP for the installation of a new Blue Smoke Control System (BSC) on **both** asphalt plants (EU#1 and EU#2). The Order required that the BCS system be installed on EU #1 to abate odors and visible emissions by April 1, 2013. The BSC System on EU #2 was required to be installed and operated by April 1, 2012, at the Facility. The Facility was also required to obtain the services of a consultant knowledgeable in air pollution control engineering to evaluate the efficacy of the existing dust suppression system and develop a Dust Minimization Plan.

Additionally, the Facility was required to submit information for the consolidation of all active Plan Approvals into one Air Quality Plan Approval. This Plan Approval will supercede all others previously issued but applications drawing and specifications remain applicable.

In order to consolidate previously issued Air Quality Plan Approvals and to allow the installation and operation of the BSC System, the Permittee submitted the present Application, #X238719, to MassDEP on June 13, 2011.

This Plan Approval supersedes and replaces the above-referenced 7.02 Plan Approvals. However, the underlying Plan Approval applications, with supporting material for each of the referenced Plan Approvals, remain applicable unless superseded by the conditions and provisions of this Plan Approval.

II. PROJECT DESCRIPTION

The Permittee is seeking to modify the existing asphalt drum and batch plants by installing and operating a Blue Smoke Control System (BSC) for the control of organic emissions, odors, and visible emissions that result from the loading of finished hot asphalt mix into trucks, and transferring of hot mix asphalt (HMA) to the storage silos. In addition to the installation of the BSC, the truck load out areas serving the Barber Greene Batch plant (#2), the three (3) storage silos serving the Astec plant (#1) and the upper vents serving the silos will be modified to capture the fugitive Volatile Organic Compound (VOC) emissions. Emissions from the BSC units will vent through a stack with approximate dimensions of 25 inches by 37 inches (25" x 36") a discharge height of 16 feet (16') above ground.

The captured air stream is vented through a fiber bed mist collector for the removal of VOC aerosol, which will coalesce within the collector and drain to a sump. In order to maximize the capture efficiency of the BSC systems, Granger Lynch shall install and maintain a polyvinyl (PVC) curtain system on the inlet and outlet of the load out areas under the batch tower and the silos. Actual length of the vinyl curtains will be determined before the units are fully operational. The sides of the tower and silos will be enclosed with exterior sheathing materials to minimize excess air being drawn into the system. Each BSC system will be equipped with a variable speed drive controller. Exit velocities will vary dependent on the demand to the system.

Installation of the enclosed load out area on the Barber Greene batch plant shall be completed during the 2012 operating season. The remaining components of the plants will remain unchanged. The BSC system shall be maintained and operated in accordance with the manufacturer's requirements and the Standard Operating Procedures/Standard Maintenance Procedures (SOP/SMP) and in accordance with this Plan Approval.

Blue Smoke Control (BSC) System information common to both units.

The BSC System is manufactured by Butler Justice and is designed to collect and control oil mist and vapors that form during the production of hot asphalt mix. The oil mist can result in visible emissions and odors. The system is designed to control visible and odor emissions by infusing ambient air at key points to help coalesce the oil droplets into large droplets sizes that can be filtered out. The coalesced oil is drained from the filters via gravity and collected in a sump. The unit is a series of 6 stages of filter cartridges. The first three (3) stages are aluminum mesh and designed to be cleaned when necessary. Stages four through six (4-6) are disposable and replaced when they become plugged. The BSC uses a magnehelic gauge to monitor the pressure drop of the fifth and sixth stage filters. The pressure gauge monitor serving the BSC is located in the operator's control office.

As per the Order, the Permittee will evaluate the functionality and efficiency of the Blue Smoke Control unit installed on the Barber Greene batch plant (EU#2) before signing a purchase order for a Blue Smoke system on the Astec drum plant (EU#1) and the associated storage silos. If in the opinion of the Permittee and the MassDEP the unit does not operate as specified then the Permittee will purchase and install a Blue Smoke Control system unit that is equal to or has an increased efficiency than the unit specified in this Plan Approval in the required time frame.

III. EMISSION UNIT IDENTIFICATION

The emission units (EUs) subject to and regulated by this Plan Approval are described below and are summarized in Table 1.

Emission Unit #1 -Astec drum plant

EU#1 is an Astec drum mix type plant constructed in 1992. The plant replaced a batch type plant constructed in 1957 and upgraded in 1973. This unit is capable of processing 485 tons per hour of sand and stone, 28 tons per of liquid asphalt cement, and 160 tons per hour of Reclaimed

Asphalt Product (RAP). RAP is recovered from paving projects and stockpiled at the site for recycling. RAP may be crushed so that it passes a one inch (1") square screen.

Aggregate is dried and heated to remove the moisture in the inner drum, which is a counter flow dryer. After drying and heating, the aggregates are discharged through openings in the inner drum near the burner to the outer drum or mixing chamber and start to travel in the opposite direction. Liquid asphalt cement, RAP, and additives are introduced in the mixing chamber and mixed with the heated aggregates. The hot mix asphalt (HMA) material is then discharged to the enclosed inclined slat conveyor to the silos. Two (2) RAP feed bins are provided with variable speed drive belt feeders. The bins are loaded with a front-end loader. The belt feeders discharge onto a collecting conveyor which discharges the RAP onto a feed conveyor to a double deck vibrating scalping screen. Materials passing through the screen are discharged onto a feed conveyor to the outside drum of the Astec double barrel drum and mixed with dried heated aggregate, asphalt cement, and additives.

Particulate matter (PM) from EU#1 is presently controlled by a cyclone and a baghouse. A new BSC system (described below) is the object of this Plan Approval and will be installed and operated at all times including during storage silo filling and truck loading.

Computer Controls- EU#1 is fully automated using programmable controls for blending materials and distributing heat generation in the process for optimum efficiency and use of natural gas. EU#1 is electrically interlocked to shut down affected operations in material proportioning according to customer specifications, temperature control process equipment components, and air pollution control.

The Operator's control panel includes a visual monitor of process functions on a schematic including process rate, mix data, mix temperature, gas temperature entering the baghouse, pressure differentials in baghouse, and burner data. Operational data is printed on command.

Cyclone

The Astec cyclone model CV 12 is a primary particulate collector for the removal of large sized PM from the rotary drum dryer. Cleaned gas is then exhausted to the baghouse inlet. The cyclone consists of 1 module at 70,000 actual cubic feet per minute (ACFM) with a 42% collection efficiency of PM greater than 10 microns (> 10 microns) and overall pressure drop of approximately 4 inches of water. Fines collected from the cyclone are returned to the rotary drum.

Baghouse

The baghouse manufactured by CMI Corp, model no. ROTOAIRE RA-20 series model 165 consists of 960 fourteen oz. Nomex woven bags, having a bag surface area of 16,963 square feet providing an air to cloth ratio of approximately 6 to 1. The unit was designed to handle a maximum of 75,000 ACFM, with a pressure drop not to exceed 6 inches (6") of water with an overall collection efficiency of +99% and a stated emission rate of 7.53 pounds per hour (TR#24961 issued 7/20/1992).

Fine particulate collected from the baghouse is pneumatically transferred to a dedicated storage silo. The fines are then re-introduced into the bituminous concrete mixture via a metered auger system, as required. The amount of PM fines required is different for each mixture depending on the mix formula. The fines silo vent is ducted back into the dryer.

Blue Smoke Control system

Model no. 6S20C has a capacity of 40,000 actual cubic feet per minute (acfm). Bituminous concrete is sent to the storage silos. There is no load out area at the Astec drum plant. The system will consist of an enclosure under the silos load out area and be maintained under negative pressure as indicated on a gauge monitored by the operator in the control room. This pressure shall be identified during the performance and optimization testing as required in this Approval.

Emission Unit #2-Barber Greene Batch Plant

EU#2 is a batch type asphalt plant constructed in 1966 and upgraded in 1983 with the installation of a baghouse particulate control system. In addition to the baghouse, particulate matter from EU#2 will be controlled by the new Blue Smoke Control system (described below).

The Hauck low NOx burner (model no. 75B) utilizes natural gas and distillate fuel oil with a sulfur content not to exceed 0.05 weight percent at a rate of 582 gallons per hour or 80,080 cubic feet per hour (80,080,000 BTU per hour input) natural gas at 100% rated capacity.

Baghouse

The Standard Haven Model Alpha Mark V (air approval #CM-82-IF-038 issued 10/15/1982), size 24 fabric filter collector utilizes 336 woven Nomex bags having a surface are of 10,416 square feet and providing an air to cloth ratio of 5.18 to 1 while operating at a rate of 54,000 actual cubic feet per minute (ACFM). The bags are cleaned by reverse pulse jets. Fine particulate collected from the baghouse is pneumatically transferred to a dedicated storage silo. The fines are then re-introduced into the bituminous concrete mixture via a metered auger system, as required. The amount of PM fines required is different for each mixture depending on the mix formula. The fines silo vent is ducted back into the dryer.

Blue Smoke Control System

EU#2 will be equipped with Model No. 6S12C that has a capacity of 24,000 ACFM n 2012 per the Order. The enclosed area under the Barber Greene load out will be maintained under negative pressure as indicated on a gauge monitored by the operator in the control room. This pressure shall be identified during the performance and optimization testing as required in this Plan Approval.

Emission Unit #3- heater

EU#3 is a Heatec burner Model No. HC 300 is used to heat hot mix asphalt product in the insulated silos (the conical hopper at the base of each silo has a heated coil), process equipment, and specification used oil.

Emission Unit #4- three (3) asphalt storage silos

The three (3) insulated storage silos temporarily store (usually 24 hours) finished hot mix asphalt (HMA). Each silo has a capacity of 330 tons. These silos offer flexibility when haul trucks are unavailable for loading. Trucks may load from under these silos. This load out area is enclosed and equipped with duct pickups leading to the BSC unit for the Astec Drum plant, EU#1.

Emission Unit #5- liquid asphalt storage tanks

The Facility operates a total of four (4) above-ground liquid asphalt tanks. Three (3) of the tanks have a capacity of 20,000 gallons each and one tank has a capacity of 30,000 gallons. Asphaltic cement is furnished to the Facility via tank truck from acceptable sources and is stored on site. Asphaltic cement is stored at temperatures in the range of 250 0 F to 325 0 F, depending on the grade and the use.

Emission Units 6 & 7 – fuel tanks

EU 6 &7 represent three (3) above-ground fuel oil storage tanks. One (1) tank has a capacity of 20,000 gallons and stores specification waste oil. Two (2) fuel oil tanks each have a capacity of 8,000 gallons each. The tanks sit in reinforced concrete containment.

Emission Unit #8- aggregate and sand handling and raw material storage

EU#8 represents the transferring, handling, and storage of aggregate stone and sand used in the manufacture of the asphalt. Five (5) cold feed bins each with a capacity of 100+ tons are equipped with variable drive speed belts to feed damp sand and stone onto a belt conveyor. Feed conveyors are equipped with belt scales used by the computer control in the operator's control center to regulate feed rate.

Table 1				
Emission Unit	Description of Emission Unit	EU Design Capacity	Pollution Control Device (PCD)	
	Astec counter flow dryer Model No. SDB-450 Hauck ECO Star 150 burner Drum Plant	400 tons per hour asphalt production90,000,000 Btu/hr	 CMI Corp Baghouse- Model RA 20S Astec Cyclone Model CV 12 Blue Smoke Control 6S20C (40,000 cfm) Silo Load out area enclosure Low NOx burner Hauck burner silencer 	
EU #2	Barber Greene model no. DC 70 Hauck Eco-Star II burner model 75B Batch Plant	 360 tons per hour asphalt production 582 gallons per hour 93,000,000 btu/hr 	 Knock out box Standard Havens Baghouse Blue Smoke Control 6S12C (24,000 cfm) Load out area enclosure Low NOx burner 	
EU#3	Hot oil heater CEI no.2000	2,500,000 btu/hr	NA	
EU#4	Three (3) insulated storage silos	330 tons capacity each	Blue Smoke Control serving EU#1 will also control the silos top and silo load out area	
EU#5	Steel above-ground liquid asphalt cement storage tanks	Three (3) tanks have 20,000 gallons capacity each 1 tank has a 30,000 gallon capacity	Fume condenser serving the 3- 20,000 gallon tanks Fume condenser on the 1-30,000 gallon tank	
EU#6	Steel above-ground #2 fuel oil steel storage tanks	Two (2) steel tanks with a capacity of 8,000 gallons each	NA	
EU#7	Steel above-ground specification used oil storage tank	1 tank with a capacity of 20,000 gallons	NA	
EU#8	Aggregate and sand cold feed bins and storage piles	Ten (10) cold feed raw material bins – 100 tons each (five on each plant)	Dust suppression- Programmable water sprinkler and nozzles to keep the raw material piles and the roads damp. Loader operator can also remotely activate sprinkler system	

Table 1 key:

Btu/hr- British thermal units per hour
EU- Emission Unit Cfm- cubic feet per minute NOx- nitrogen oxides

IV. EMISSIONS

Emissions of Particulate Matter (PM), products of combustion, Volatile Organic Compounds (VOCs), and noise may occur from operations at this Facility.

Products of combustion from the burning of distillate fuel oil and/or specification used oil in the dryers (EU#1 and EU#2) and the hot oil heater (EU#3) will result in emissions to the ambient air of PM, Sulfur Dioxide (SO₂), Nitrogen Oxides (NOx), Carbon Monoxide (CO) and VOCs. PM and VOC emissions and visible emissions may result from the storage and handling of aggregate from feed stock piles, the transporting of materials on conveyors, screens and elevators and the placement of the materials into and removal from the storage bins and silos.

The three (3) storage silos (EU#4) hold hot mix asphalt product (HMAP) for durations of 2-3 days or less. VOC and visible emissions from the stored asphalt will be exhausted and controlled by the Blue Smoke Control System serving the Astec drum plant (EU#1) that will be installed no later than April 1, 2013.

V. EMISSION LIMITS AND RESTRICTIONS

The Permittee shall comply with the emission limits and restrictions presented in Table 2 below. In order to remain below major source thresholds, the Permittee shall restrict distillate fuel usage and HMA production on a calendar month and 12-month rolling total. The restrictions are presented in Table 2 below.

	Table 2				
EU#	Fuel/Raw Materials	Pollutant	Emissions Limit/Standard ¹	Restrictions ²	Plan Approval No.
Astec dryer conte	Distillate fuel oil with a	PM	0.03 gr/dscf and 2.1 tons per 12- month rolling total	#2 Fuel .05% Sulfur use limited to 90,000 gallons per calendar month and 405,000 gallons per 12- month rolling total Hot Mix Asphalt Product production limited to 130,000	Retrieved from TR #206086 Dated January 2001
	content of 0.05 percent	SO ₂	0.056 lbs/MMBTU and 1.6 tons per 12 month rolling total		
	by weight (0.3% sulfur)	NOx	0.18 lbs/MMBTU and 5.1 tons per 12 month rolling total		
	Aggregate	СО	0.357 lbs/MMBtu and 10 tons per 12- month rolling total		
	VOC	0.039 lbs/asphalt produced and 5.3 tons per 12-month rolling total	tons per calendar month and 603,000 tons per 12- month rolling total		
Specification Used Oil	PM	0.03 gr/dscf and 2.7 tons per 12- month rolling total	Specification Used Oil use limited to 105,000 gallons per calendar month and 500,000 gallons per 12-month rolling total		
	SO ₂	0.50 lbs/MMBTU and 17.5 tons per 12- month rolling total			
	NOx	0.25 lbs/MMBTU and 8.7 tons per 12- month rolling total			
	СО	0.4 lbs/MMBtu and 14.0 tons per 12- month rolling total			
		VOC	0.039 lbs/ton asphalt produced and 6.5 tons per 12- month rolling total		
Barber Greene drum dryer	 Distillate fuel oil 0.05% sulfur by weight Aggregate Natural gas 	PM	0.03 gr/dscf and 2.6 tons per 12-month rolling total.	#2 fuel oil .05% sulfur limited to 40,000 gallons calendar month and 200,000 gallons per 12 month rolling total Natural gas Usage	Short term limits Retrieved from TR#51008664 issued 4/2008 Fuel limits established in TR#206086
		SO ₂	0.056 lbs/MMBTU and 2.4 tons per 12- month rolling total		
		NOx	0.18 lbs/MMBTU and 7.9 tons per 12- month rolling total		
		СО	0.30 lbs /MM BTU and 13.2 tons per 12- month rolling total	limited to 22 MMCF calendar monthly and	
		VOC	0.015 lbs/ ton asphalt produced and 1.8 tons per 12- month rolling total	60 MMCF per 12 month rolling totalHot Mix asphalt	

¹ Emission limits were established through previous air application plan approvals ² Restrictions were established through previous air application plan approval

Table 2					
EU#	Fuel/Raw Materials	Pollutant	Emissions Limit/Standard ¹	Restrictions ²	Plan Approval No.
				product HMAP product limited to 80,000 tons per calendar month and 250,000 tons per 12 month rolling total	
3	Distillate fuel oil 0.3%	PM	< 1 ton per 12 month rolling total for any criteria pollutant	#2 fuel oil usage shall not exceed 3,000 gallons per calendar month and 22,500	Retrieved from TR#206086
Hot oil heater	Natural gas	SO ₂	ior any ornana ponatana		111/1200000
		NOx		gallons per 12 month	
	CO VOC			rolling total	
Facility wide			Visible Emissions	a. Visible dust emissions from any part of the Facility, vibrating screens, aggregate discharge shall not exceed 10% opacity during any mode of operation. b. Visible dust emissions from the exhaust stacks serving the fabric filter collectors - 10% opacity during operating times. c. Visible emissions from the exhaust stacks serving the Blue Smoke control units shall be ≤5%, except ≤ 20% for ≤2 minutes during any one hour period d. Top of silos collected and controlled by 90% minimum of exhaust gases displaced from filling of the silos.	a. TR#X238719 b. TR #206086 c. TR#X238719 d.BACT determination TR#238719

Table 2 key:
MMCF = million cubic feet

gr/dscf = grains per dry standard cubic foot of exhaust gas lbs/ MMBTU= pounds per million British thermal units

CO = Carbon Monoxide

 CO_2 = Carbon Dioxide

EU= Emission Unit

 $NO_x = Nitrogen Oxides$

 $SO_2 = Sulfur Dioxide$

TR= Transmittal number

TPY = tons per consecutive 12 -month rolling period

PM = Total Particulate Matter

VOC = Volatile Organic Compounds

The Permittee when operating in accordance with the conditions in this Plan Approval shall not exceed the total emissions per year as summarized in Table 3 below.

TABLE 3 Tons Per Year ^{1,2}			
Pollutant	Emission Unit #1	Emission Unit #2	Total Tons
PM	4.8	2.6	7.4
SO ₂	19.1	2.4	21.5
NOx	13.8	7.9	21.7
CO	24.0	13.2	37.2
VOC	11.8	1.8	13.6

Table 3 Notes:

- 1. The above limits are taken from TR# #206086 issued January 2000 and TR# #206086 amended January 2001, and TR# 51008664 issued April 2008.
- 2. Emissions are for a 12-month rolling total period

VI. SPECIAL CONDITIONS

A. Emission Units No. 1 & 2

- 1. The Facility shall comply with the Federal New Source Performance Standard (NSPS) for hot mix asphalt plants (40 CFR, Part 60, Subpart I). At the MassDEP's discretion, the Facility must demonstrate compliance with applicable performance requirements of this standard.
- 2. The Operator's control panel includes a visual monitor of process functions on a schematic including process rate, mix data, mix temperature, gas temperature entering the baghouse, pressure differentials in the baghouses, and burner data. Operational data is printed on command. The Plant Operator shall conduct daily environmental inspections of the plant and shall track the inspections, date, and initials of the operator on a log system identifying the parameters checked and occurrence of malfunction and actions taken to repair equipment.

- 3. Asphalt manufacturing cannot occur without the air pollution control equipment continuously operating properly.
- 4. In the event that a condition exists at the Facility that prevents adequate control of dust under operating conditions, the Facility shall be shut down until the condition is abated and the Facility can operate in conformance with this Approval.
- 5. Fugitive emissions generated by conveying and screening damp cold feed aggregates and RAP are to be controlled by wind screens and hoods, as necessary.
- 6. The Permittee shall conduct annual efficiency testing on each of the asphalt dryer burners.
- 7. The Permittee shall implement and conduct a routine preventative maintenance and inspection program to evaluate the operating condition of the baghouses and associated equipment (e.g. fans, screw conveyors, air regulators, doors, baffle plate etc.) All maintenance and repairs conducted on the units shall be recorded in a dated log book and be initialed by the personnel conducting the repairs and/or tests.
- 8. The Permittee shall continuously monitor the pressure differentials across each of the baghouses and the pressure differential readings shall be recorded no less than once per day.
- 9. The Permittee shall maintain an inventory of baghouse replacement bags.
- 10. The Permittee shall continuously monitor the pressure differential across each of the BSC systems. The pressure differential shall be recorded in a dated log book no less than once per day.
- 11. The routine cleaning and washing of the metal filters from each of the BSC systems shall be conducted on an impervious surface. All wash water will be captured and properly disposed. The condensed particulates that are captured in a container will be placed into either the asphalt tank or in a waste oil tank and properly managed and disposed of pursuant to 310 CMR 30.000.
- 12. The load out area enclosures serving both plants shall be operated under negative pressure at all times.

EU#1 Astec Drum Plant

13. The pressure drop across the baghouse serving EU#1 is approximately 5 inches (5") (operating range 2"-6" depending on operating conditions) of water with an overall collection efficiency of 99.97%.

- 14. The emissions from the baghouse serving EU#1 are emitted to the ambient air through a steel stack, the top of which is 48 feet above ground level and has an inside exit equivalent diameter of 42.75 x 57.5 inches (42.75" x 57.5") which provides for a maximum exit velocity of 80 feet per second at 350 °F (high end stack exit temperature).
- 15. The baghouse shall be equipped with an interlock system that will shutdown the dryer burners when the baghouse reaches a temperature equal to or greater than 400 ⁰F.
- 16. Install and operate a load out enclosure with capture ducts on the silo load out area and pickup ducts on the top of the silos. The captured emissions shall be conveyed to the BSC device that is in proper operating condition.
- 17. The load out area shall be enclosed with exterior sheathing materials and a polyvinyl chloride plastic strip curtain that is maintained according to design and without gaps or rips.
- 18. The Permittee shall provide closed circuit TV in the load out enclosure for the silos with monitors located in the operator control center.
- 19. The fume pick up fans serving the silo top vents and load out area serving the storage silos shall be maintained in proper operating conditions at all times.
- 20. The overall removal capacity of the BSC system shall be at least 98% on 1.8 micron particulate matter (PM) and 95% at 0.3 micron PM.

EU#2 Barber Greene Batch Plant

- 21. The pressure drop across the baghouse is between two inches (2") and four inches (4") of water with an overall collection efficiency of 99.8%.
- 22. The emissions from the baghouse serving EU#2 are emitted to the ambient air through a steel stack, the top of which is 45 feet above ground level and has an inside exit equivalent diameter of 48 inches which provides for a maximum exit velocity of 72 feet per second at 350 °F(high end stack exit temperature).
- 23. The baghouse shall be equipped with an interlock system that will shutdown the dryer burners when the baghouse reaches a temperature equal to or greater than 400 0 F.
- 24. Install and operate a load out enclosure with capture ducts on each side of the pugmill mixer discharge. The captured emissions shall be conveyed to the BSC device.
- 25. The collected fumes from the EU#2 batch, mixing and load out areas will be continuously controlled by the BSC System that is in proper operating condition.

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- 26. The load out area shall be enclosed with exterior sheathing materials and a polyvinyl chloride plastic strip curtain that is maintained according to design and without gaps or rips.
- 27. The Permittee shall provide closed circuit TV in the load out enclosure and the batching/mixing area for EU#2 with monitors located in the operator control center.
- 28. The overall removal capacity of the BSC shall be at least 98% on 1.8 micron PM and 95% at 0.3 micron PM.

B. Emission Units No. 3-8

Emission Unit #3- Hot Oil heater

- 29. The round metal stack serving the hot oil heater is twenty feet (20') above the ground and has an exit diameter of 10 inches (10").
- 30. The unit utilizes natural gas and distillate #2 fuel oil with a sulfur content not to exceed 0.3% sulfur.

Emission Unit #4- Three (3) asphalt storage silos

31. The top of each silo and the load out areas under each silo shall be vented to the BSC System serving the Astec drum plant (EU#1).

Emission Unit #5- Liquid asphalt storage tanks

32. The 30,000 gallon storage tank shall be equipped with a dedicated condenser. The three (3) 20,000 gallon liquid asphalt cement storage tanks are manifolded to one large fume condenser that will allow organic condensate to collect back into the a tank. The fume condensers shall be in proper operating condition at all times.

Emission Unit #8- Raw material handling, transfer and storage – Dust Minimization

- 33. The Permittee shall develop and implement a dust minimization plan that addresses all aspects of aggregate processing, paved and unpaved surfaces, wind wall maintenance, and any action necessary to minimize the generation of airborne dust emissions as a result of processes at the site.
- 34. The Permittee shall continually update the Dust Minimization Plan (the "Plan") as necessary. The Plan shall be readily available for reference by personnel or MassDEP.

- 35. A programmable sprinkler operates rain or shine to suppress dust on site. The system is operated by a timed controller which is fully programmable. The timing and duration of the sprinkler operation in each zone may be adjusted, as required.
- 36. The Permittee shall implement daily inspections of the site and access roads and document on a log to ensure that all areas are free of dust.
- 37. Unloading aggregate from Delivery Trucks- The moisture content of the aggregate shall be at least 1.5% before dumping into the aggregate feed bins or the stockpiles. Water may be applied at the source before shipment or at the plant site before unloading.
- 38. Loading Cold Aggregate Bins- Aggregate shall be loaded into the cold aggregate feed bins with a front –end loader and / or dump trucks. Spill plates which serve windshields shall be at least four (4) feet high above the bin tops on three sides of each bin.
- 39. Cold Feed Aggregate Bin Discharge- Cold feed aggregate bin discharge onto the collecting belt conveyor shall be skirted or equipped with rubber flaps or equivalent.
- 40. Paved Roads All service roads and ramps shall be paved. Paved surfaces shall be cleaned of excess aggregate and debris that may cause fugitive emissions or contribute to drag out onto access roads.
- 41. The paved areas are to be cleaned with a power sweeper as necessary to prevent dust emissions. Water is to be applied before and /or during sweeping. An environmentally safe dust suppressant may be used when low ambient temperatures prevent the use of water.
- 42. Unpaved Roadways, Excavation Areas and Aggregate Storage Piles- Aggregate storage areas and unpaved roadways shall be watered down as necessary or treated with the application of a dust suppressant to minimize the generation of fugitive emissions. Water shall be applied by sprinklers or a water truck as needed to prevent fugitive dust emission when surface temperatures are above freezing. An environmentally safe dust suppressant shall be applied to paved surfaces when the surfaces are below freezing temperatures. Water shall be applied at a rate to minimize runoff. Excess water runoff shall be contained on site.
- 43. Take appropriate action to prevent "track-out" to the paved areas including the installation of tracking pads.
- 44. Aggregate stockpiles are to be formed and maintained to minimize fugitive dust caused by wind erosion. Water nozzles at the piles shall be operated in a manner to maintain sufficient moisture content of materials necessary to minimize dust.

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45. Routine maintenance shall be performed as needed. Good housekeeping that includes but is not limited to mechanical sweeping and maintenance procedures must be initiated on a continuous basis to prevent the deterioration of process equipment and /or control equipment to minimize dust, visible emissions including blue smoke and odor emissions.

46. Maintain the water sprinkler system and the water application equipment including the water tanker and nozzles in proper operating condition to provide effective dust suppression throughout the facility.

Facility Wide

- 47. The Permittee shall not allow nuisance odors, noise, or dust caused by asphalt production, control equipment, or aggregate processing beyond the facility boundary as determined by MassDEP.
- 48. The Permittee shall, where feasible, utilize warm mix asphalt (WMA) technology that may result in less fuel consumption, reduced energy costs, reduced air emissions, and improved worker safety
- 49. During the construction phase of the new control equipment, Facility personnel shall take reasonable precautions to minimize air pollution conditions such as dust, odor, noise, and visible emissions
- 50. The Permittee shall post speed limit signs through the Facility yard to minimize dust emissions from vehicular traffic.
- 51. The Permittee shall post "No Idling" signs throughout the yard to prevent trucks from running their engines while waiting to deliver or load materials at the yard.
- 52. The Permittee will shall make every effort to minimize combustion emissions from motor vehicles including loaders and dump trucks with measures that may include, but are not limited to, the installation of oxidations catalysts or equivalent.

VII. MONITORING & TESTING REQUIREMENTS

- A. The Plant Operator (or designee) shall conduct daily environmental inspections of the Facility and shall track the inspections, date, and initials of the inspector on a log system identifying the parameters checked and the occurrence of any malfunction and all actions taken to repair equipment.
- B. Within ninety (90) days of the operation of **both** of the Blue Smoke Control Systems, the Permittee shall submit a written testing protocol to MassDEP, Air Quality Permitting for

written approval that will describe the following compliance and optimization tests that will be conducted at the Facility.

- 1. Opacity evaluation to determine compliance with the allowable opacity limits listed in Table 2 for each of the Blue Smoke Control Units. The tests shall be conducted at the following locations:
 - The Astec Drum Plant –Silo Load out area
 - The Barber Greene Batch Plant- Mixing Load out area
 - The asphalt storage silo top vents
 - The stack serving each Blue Smoke Control System
- 2. <u>Opacity evaluation</u> to determine the efficacy of the new dust suppression system serving the raw material aggregate and sand handling, transferring, and storage piles and determine compliance with the opacity limits stated in Table 2.
- 3. <u>Pressure differential</u> across each BSC unit. The differential pressure values established at this test will be enforceable by this Plan Approval and be continually monitored by a gauge located in the operators' control room.
- 4. <u>Negative Pressure</u> at each BSC collection point including both load out areas and silo vents. The negative pressure values established at this test will be enforceable by this Plan Approval and be continually monitored by a gauge located in the operators' control room.
- C. The opacity compliance test shall be conducted in accordance with USEPA Method 9, as specified in 40 CFR 60, Appendix A.
- D. The compliance tests must be conducted within thirty (30) days of MassDEP approval of the testing protocol.
- E. The final test report must be submitted within sixty (60) days of completion to the MassDEP, Air Quality Permitting, Central Regional Office, 627 Main Street, Worcester, MA 01608.
- F. GENERAL TESTING REQUIREMENT- In accordance with 310 CMR 7.13, MassDEP may require testing for any pollutants if deemed necessary to ascertain the mass emission rates and relationship to equipment design and operation. The Permittee shall conduct stack testing when MassDEP has determined that such stack testing is necessary to ascertain compliance with MassDEP's regulations or design approval provisions. Such stack testing shall be:
 - 1. conducted by a person knowledgeable in stack testing,

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- 2. conducted in accordance with procedures contained in a test protocol which has been approved by MassDEP, and
- 3. in the presence of a representative of MassDEP when such is deemed necessary in accordance with 310 CMR 7.13.
- G. Emission testing to demonstrate compliance with emission limits specified in Tables 2 and 3 shall be in accordance with USEPA approved reference test methods unless otherwise approved by USEPA and MassDEP or unless otherwise specified. The Facility will be constructed to accommodate emission testing requirements contained herein. The Permittee shall have conducted emission testing in accordance with the following:
 - All emission will be conducted in accordance with the Department's "Guidelines for Source Emission Testing" and in accordance with the Environmental Protection Agency tests as specified in the code of Federal Regulations Title 40, Part 60, Appendix A... Standards of Performance for New Stationary Sources of Air Pollution and with NSPS-Subpart I Standards of Performance for Hot Mix Asphalt Plants, Section 60.93, Test Methods and Procedures.
 - 2. The Facility must obtain department approval of the stack test protocol. A detailed description of sampling ports locations, sampling equipment, sampling and analytical procedures, and operating conditions for such test must be submitted to this office at 90 days prior to testing of the facility.
 - 3. The Permittee shall summarize to the MassDEP the results of the stack testing as prescribed in the approved pretest protocol.
- H. When required by MassDEP, the Permittee shall obtain individual samples of the fuel oil used during each run of the emission testing. The fuel oils sample shall be analyzed for sulfur content and heating value. The sample shall be tested by an independent laboratory of the Permittee's choosing. All laboratory expenses shall be paid for by the Permittee.
- I. Preliminary results of the compliance stack test must be submitted within thirty (30) days of completion to MassDEP, Air Quality Permitting, Central Regional Office. 627 Main Street, Worcester, MA 01608
- J. The final test report must be submitted within sixty (60) days of completion to the Department of Environmental Protection, Air Quality Permitting, Central Regional Office, 627 Main Street, Worcester Ma 01608.
- K. <u>Black Light Tests</u>- the Permittee shall conduct a fluorescent black light test on each of the baghouse control systems prior to seasonal startup and every thirty (30) days thereafter in order to evaluate the condition of the baghouses during plant operations. The black light

test requirement has no expiration date. See section VIII. A. 4. a) for record keeping requirements related to these tests.

- L. <u>Inspection and Maintenance</u>- In accordance with 310 CMR 7.04(4) (a), each fuel utilization facility shall be inspected and maintained in accordance with the manufacturer's recommendation and tested for efficient operation at least once in each calendar year. The results of said inspection, maintenance, and testing and the date upon which it was performed shall be record and posted conspicuously on or near the permitted equipment.
- M. Conduct daily inspections of the process equipment, air pollution control equipment monitoring associated equipment to ensure that the components are in proper operating condition (see VIII A. for record keeping requirements related to this).
- N. <u>Monitoring Devices-</u> Monitoring equipment or emission monitoring systems installed for the purpose of documenting compliance with this Plan Approval shall be installed, calibrated, maintained, and operated by the Permittee in sufficient manner to ensure continuous and accurate operation at all times.
- O. The Permittee shall monitor the operations of the entire facility such that necessary information is available for the preparation of the Source Registration/Emission Statement forms as required by 310 CMR 7.12.

VIII. RECORD KEEPING REQUIREMENTS

- A. A record-keeping system shall be established and continued on site by the Permittee. All records shall be maintained up-to-date such that twelve-month rolling period information is readily available for MassDEP examination. The Permittee shall maintain the following records on site for a period of five (5) years. Record keeping shall, at a minimum, include:
 - 1. Quantity of fuel (gallons) burned in the rotary dryer and oil heater on a calendar monthly basis and 12-month rolling total and the fuel purchase receipts that contain the fuel sulfur content in pounds per million Btu.
 - 2. Quantity (tons) of HMAP material produced on a calendar monthly basis and 12 -month rolling total.
 - 3. Maintain a daily log of observations conducted by the plant operator that includes visible emissions observations, of air pollution control equipment, visible observation of dust emissions throughout the Facility including paved and unpaved roads, pressure differentials at each baghouse and the BSC Systems and any other process components that may require repair. The log shall indicate inspection date, time, and personnel conducting the inspection, actions taken and resolution of problems. Visible emission observations of the Facility may be completed utilizing EPA Method 22.

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- 4. An equipment maintenance Log including as a minimum:
 - a) Dates of the performance of fluorescent black light tests on the baghouses, the result(s) of said testing, the number of bags replaced (if required) and the date(s) on which the unit was inspected.
 - b) Dates on which maintenance was performed on any plant component, including baghouse, silos, conveyors elevators or other plant equipment and service rendered.
 - c) Yard maintenance records including dates when water or other dust suppression measures were used and when roadways were swept to control fugitive dust emission.
- 5. Compliance records sufficient to demonstrate that emissions have not exceeded what is allowed by this Plan Approval. Such records may include daily production records, raw material usage rates, fuel purchase receipts, emissions test results, monitoring equipment data, and reports.
- 6. Maintenance: A record of routine maintenance activities performed on emission unit, control equipment, and monitoring equipment including, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
- 7. Malfunctions: A record of all malfunctions on emission unit, control equipment and monitoring equipment including, at a minimum: the date and time the malfunction occurred; a description of the malfunction and the corrective action taken; the date and time corrective actions were initiated; and the date and time corrective actions were completed and the emission unit returned to compliance.
- 8. Maintain adequate records on-site to demonstrate compliance with the emission limits, as stated in Tables 2 and 3 of this Plan Approval. At a minimum, the information shall include the calculated facility emissions for the month as well as the prior 11 months.
- 9. Records of emissions testing conducted to demonstrate compliance with the applicable requirements in Tables 2 and 3 shall be in accordance with 310 CMR 7.13.
- B. The Permittee shall maintain a copy of the Dust Minimization Plan required as a result of the Order. It shall be readily available for Granger Lynch Facility personnel and MassDEP personnel upon request.
- C. The Permittee shall maintain a copy of the Standard Operating and Maintenance Procedures (SOMP) for the Blue Smoke Control Systems. It shall be readily available for Granger Lynch Facility personnel and MassDEP personnel upon request.

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- D. The Permittee shall maintain sufficient records of its operations and monitoring information for the preparation of a Source Registration/Emission Statement Form as required by 310 CMR 7.12.
- E. The Permittee shall keep on-site copies of the Source Registration/Emission Statement Forms submitted to MassDEP for five (5) years as required per 310 CMR 7.12.
- F. PLAN APPROVAL LETTER Pursuant to the authority granted to MassDEP at 310 CMR 7.02, the Facility shall maintain a copy of this Plan Approval, and any subsequent modifications of this Plan Approval, on-site for as long as the Plan Approval is valid. In accordance with 310 CMR 7.02, the Plan Approval is valid until one of the following conditions occur: the equipment is dismantled or removed from the facility, the facility notifies MassDEP that the Plan Approval is no longer valid, the equipment is substantially reconstructed or altered and subject to 310 CMR 7.02, the Plan Approval is superseded by another approval, or MassDEP revokes the Plan Approval in accordance with 310 CMR 7.02.
- G. OPERATING AND MAINTENANCE PROCEDURES The facility shall maintain a copy of the approved Standard Operating Procedure (SOP) and Standard Maintenance Procedure (SMP) for all air-pollution-control-related equipment on-site for as long as this Plan Approval is valid. Updates or revisions to the SOP and SMP shall be submitted for MassDEP approval prior to initiating the modification(s).

IX. REPORTING REQUIREMENTS

- A. As required in ACOP-CE-10-9006-27, the Permittee shall notify MassDEP in writing, prior to operation, and at least thirty days (30) days prior to the arrival of any portable special asphalt equipment to the Millbury location that may result in odor. The notification must indicate the operating parameters and mix contents, operating duration (hours and days) and actions that will be taken to minimize odors. Identify the contact and phone number for immediate notice by MassDEP in the event that odor complaints are received.
- B. The Permittee shall notify MassDEP, Air Quality Permitting, as soon as reasonably practical by telephone, email, or fax after the occurrence of any upsets or malfunctions (i.e., any piece of equipment or device breakdown that causes an excess emission) and in writing within two (2) business days of such event.
- C. The Permittee shall summarize and submit to MassDEP, Air Quality Permitting, the results of stack testing as prescribed in MassDEP's approved pretest protocol, stack testing that was determined by MassDEP to be necessary to ascertain compliance with MassDEP's regulations or design approval provisions in accordance with 310 CMR 7.13.
- D. Upon MassDEP's request, any records required by the applicable requirements identified in this Plan Approval, or the emissions of any air contaminant from the Facility, shall be submitted to MassDEP within 30 days of the request by MassDEP, or within a longer time

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period if approved in writing by MassDEP. Said response shall be transmitted on paper, on computer disk, or electronically at the discretion of MassDEP.

- E. All required reports must be certified by a responsible official of the Permittee as provided in 310 CMR 7.01.
- F. The Permittee shall submit a Source Registration/Emission Statement Form to MassDEP as required by 310 CMR 7.12.

X. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Failure by the Permittee to comply with any of the above stated conditions will constitute a violation of the 310 CMR 7.00 et seq, and subject the Permittee to enforcement action as provided by law.

- H. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- I. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- J. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- K. All Plan Approvals issued under 310 CMR 7.02 prior to the date of this Plan Approval shall remain in effect unless specifically changed by this Plan Approval or superseded by this Plan Approval. The Facility shall not exceed the emission limits and comply with approved conditions specified in the applicable Plan Approval(s) unless specifically altered by this Plan Approval.
- L. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.
- M. Pursuant to 310 CMR 7.01(3) and 7.02(3) (f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

XI. LIST OF PERTINENT INFORMATION

Approval #	Approved Project
CM-82-IF-038	Barber Green baghouse
C-P-92-015	Astec Drum Plant
TR#92870	Final Restricted Emission Status for plants 1 & 2
TR#206086	modifications to Astec plant #1
	Facility wide emissions established
TR#206086	Specification used and low sulfur distillate fuel oil
	Amendment
TR#51008664	Burner replacement on the existing Barber Greene
	Plant EU#2
	CM-82-IF-038 C-P-92-015 TR#92870 TR#206086

- Supplemental information received January 18, 2012
- Non-Major Comprehensive Plan Application, TR#238719 dated January 12, 2011

XII. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

XIII. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts,
Department of Environmental Protection,
P.O. Box 4062,
Boston, MA 02211

The request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Should you have any questions concerning this Plan Approval, please contact Maria L'Annunziata by telephone at (508)767-2748, or in writing at the letterhead address.

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

> Roseanna E. Stanley Acting Permit Chief Bureau of Waste Prevention

Ecc: Kim McCoy MassDEP, CERO Yi Tian, Boston, John Lavin, Earthworks Engineering, Inc, 123 Washington St, Suite 6, Foxboro, MA 02035